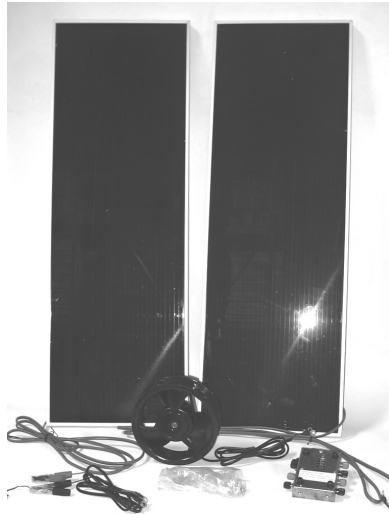




12V Solar Exhaust Fan

Model 94519

ASSEMBLY AND OPERATING INSTRUCTIONS



Due to continuing improvements, actual product may differ slightly from the product described herein.



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For technical questions and replacement parts, please call 1-800-444-3353

Specifications

Construction	2 Solar Panels with Mounting Bracket, Controller and Exhaust Fan.	Output	12 VDC 12 Watts 800 - 1000 mA
Exhaust Fan	6-3/4" Dia. x 2" Thick 3350 RPM. 251 CFM	Voltage Regulator	Over discharge protection less than 10.5 V Over charge protection over 14.5 V
LED Indicator	Red indicates "Charging", Green indicates "Operating"	Fuse	3 Amp push in fuse
Dimensions	12-1/2" W x 36-1/2" L x 1" D each panel	Weight	28.5 lb. Panel Only: 9.3 lb.

Save This Manual

You will need the manual for the safety warnings and precautions, assembly instructions, operating and maintenance procedures, parts list and diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep the manual and invoice in a safe and dry place for future reference.

Safety Warnings and Precautions

WARNING: When using tool, basic safety precautions should always be followed to reduce the risk of personal injury and damage to equipment.

Read all instructions before using this tool!

1. **Keep work area clean.** Cluttered areas invite injuries.
2. **Observe work area conditions.** Do not use machines or power tools in damp or wet locations. Don't expose Control Unit to rain. Keep work area well lit. Do not use electrically powered tools in the presence of flammable gases or liquids.
3. **Keep children away.** Children must never be allowed in the work area. Do not let them handle machines, tools, or extension cords.
4. **Store idle equipment.** When not in use, tools must be stored in a dry location to inhibit rust. Always lock up tools and keep out of reach of children.
5. **Use the right tool for the job.** Do not attempt to force a small tool or attachment to do the work of a larger industrial tool. There are certain applications for which this tool was designed. It will do the job better and more safely at the rate for which it was intended. Do not modify this tool and do not use this tool for a purpose for which it was not intended.
6. **Dress properly.** Do not wear loose clothing or jewelry as they can be caught in moving parts. Protective, electrically non-conductive clothes and non-skid footwear are recommended when working. Wear restrictive hair covering to contain long hair.

7. **Do not overreach.** Keep proper footing and balance at all times. Do not reach over or across running machines.
8. **Maintain tools with care.** Keep tools maintained and clean for better and safer performance. Inspect tool cords periodically and, if damaged, have them repaired by an authorized technician.
9. **Disconnect power.** Disconnect optional battery (not included) when fan is disconnected or turned off.
10. **Avoid unintentional starting.** Be sure the switch is in the Off position when not in use. This system will start and operate automatically whenever the control unit is set at or below the current temperature and the solar panels are connected. Disconnect the solar panels from the control unit before doing any maintenance to the blower.
11. **Stay alert.** Watch what you are doing, use common sense. Do not operate any tool when you are tired.
12. **Check for damaged parts.** Before using any tool, any part that appears damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for any broken parts or mounting fixtures; and any other condition that may affect proper operation. Any part that is damaged should be properly repaired or replaced by a qualified technician. Do not use the tool if any switch does not turn On and Off properly.
13. **Guard against electric shock.** Prevent body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerator enclosures.
14. **Replacement parts and accessories.** When servicing, use only identical replacement parts. Use of any other parts will void the warranty. Only use accessories intended for use with this tool. Approved accessories are available from Harbor Freight Tools.
15. **Do not operate tool if under the influence of alcohol or drugs.** Read warning labels on prescriptions to determine if your judgment or reflexes are impaired while taking drugs. If there is any doubt, do not operate the tool.
16. **People with pacemakers should consult their physician(s) before using this product.** Electromagnetic fields in close proximity to a heart pacemaker could cause interference to or failure of the pacemaker..
17. **Maintenance.** For your safety, service and maintenance should be performed regularly by a qualified technician.

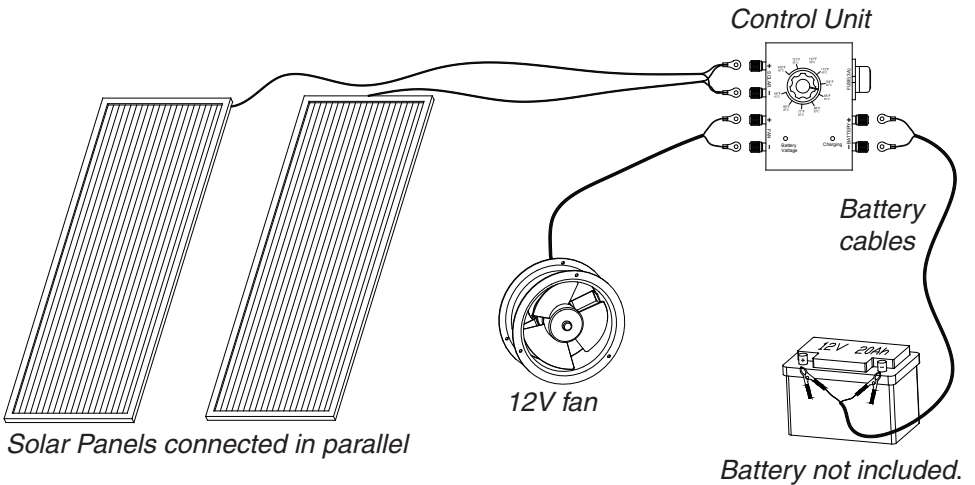
Warning: The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

Unpacking

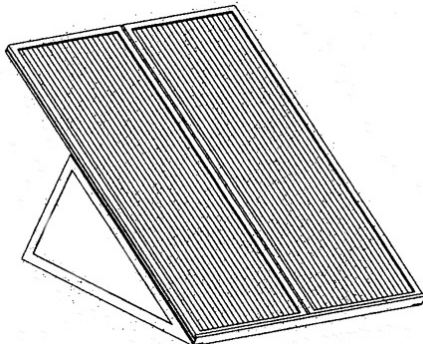
When unpacking, check to make sure that the product is intact and undamaged. Product components are shown below.

If any parts are missing or broken, please call Harbor Freight Tools at the number at the bottom of this page.

Product Components



Solar Panels on assembled mounting frame



Assembly and Operation

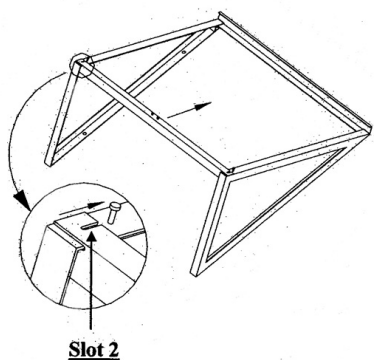
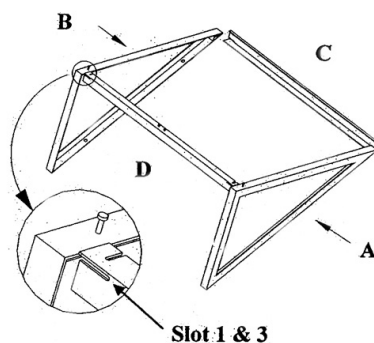
These solar panels produce electricity when in the presence of sunlight. The amount of electricity produced increases as the sunlight becomes stronger. Less power is produced in less sunlight, but these panels will generate electricity even on cloudy days.

The enclosed mounting frame is designed to hold the solar panels at an angle to increase the amount of surface directly facing the sun. Adjust the position of the mounting frame to maximize exposure to sunlight.

These solar panels are designed to power an exhaust fan, which is ideal for green houses, sheds, boats or house vents.

Assemble the solar panel frame.

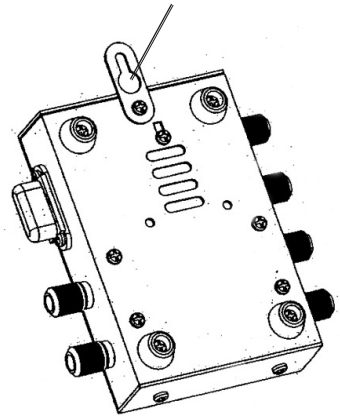
1. Press the Left and Right Triangle Frames into slots 1 and 3 on both ends of the Top Link Bar and Bottom Link bar, as shown in the diagram.
2. Push the Top Link Bar down to Slot 2 to lock the frame assembly.
3. Position the assembled frame in a location that the Solar Panels will directly face the Sun. The assembly should face the South for maximum exposure and have no obstructions in front of it. The mounting surface must be level, well constructed and capable of supporting the frame assembly and Solar Panels. The location should be out of the way of passersby and protected from damage.
4. Secure the frame assembly using hardware (not supplied) through the four holes in the bottom of the Left and Right Triangle Frames.
5. Carefully place each Solar Panel on the front of the frame assembly, so the bottom of each Solar Panel fits into the slot of the bottom of the frame assembly.
6. Lock the two eye hooks on the backs of the Solar Panels to the bolts on the Top Link Bar to secure the Solar Panels in place.



Attach the Adjustable Temperature Control Unit.

1. Mount the Adjustable Temperature Control Unit to a secure location using the keyhole hanger. The Control Unit must be mounted inside the building for the temperature control to function.
2. Attach the ring connectors from the Solar Panels to the contacts on the Control Unit marked "Solar". Attach the power cords to the proper polarity. There should be two ring connectors on each terminal.

Keyhole hanger



Attach the Exhaust Fan.

Mount the Exhaust Fan in your building using hardware (not supplied) in the holes drilled in the edge of the fan. Be sure the fan is mounted securely, is protected from water and other local materials which may damage it. A protective grid (not supplied) must be installed on both sides of the fan to prevent injury.

CAUTION: The Fan may begin operating without notice whenever there is sufficient electricity in the system from either the Solar Panels or the battery.

Attach an optional 12V battery.

1. It is recommended that a 12V 20 Ah battery (not included) be installed to store spare electricity generated during the day so the fan can continue to operate after daylight hours.
2. Battery Connector (jumper cables) are provided. Connect the RED cable to the positive (+) connector of the Control Unit and the positive (+) pole of the battery. Connect the BLACK cable to the negative (-) connector of the Control Unit and the negative (-) pole of the battery.

CAUTION: The battery must be rated for 12V and at least 20 Amp-hours. A lesser battery will be damaged if attached to this system.

CAUTION: If the fan is disconnected, also disconnect the battery. The battery may be damaged if left connected to a solar panel system without the fan operating.

Setting the Adjustable Temperature Control Unit.

1. Adjust the desired temperature by rotating the dial on the front to the desired temperature. When the ambient temperature goes above the desired temperature, the fan will go on, the fan will go off when the temperature falls below the setting. The temperature range is 59° to 140° F (15° to 60° C).
2. The Control Unit has a built in regulator that will prevent battery discharge if the battery level is less than 10.5 Volts or overcharge if the battery charge is over 14.5 Volts.

Maintenance

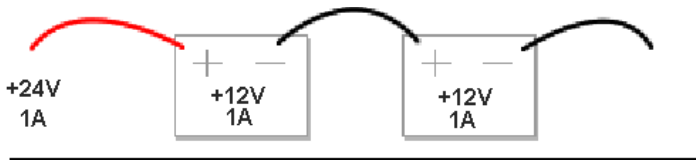
NOTE: These panels will produce electricity on a continual basis depending on the amount of sunlight they receive, as long as they have a completed circuit and the temperature control is adjusted to the ambient temperature.

1. Be aware that the exhaust fan may operate automatically whenever a solar panel is exposed to sunlight or there is charge in the battery.
2. Some batteries will be damaged if they are continuously charged. Do not leave the fan disconnected and any battery attached to this system. Although the control unit has a built-in regulator, it may not protect the battery in all situations.
3. Keep the solar panels clean. Wipe them occasionally using a damp cloth with mild detergent. Do not use abrasives. Dirt on the glass will reduce the capacity of the panels to receive sunlight.
4. Periodically check the wiring, mounting and status of the system. Repair any unsafe condition immediately.
5. If the unit stops working even in bright sunlight, check the fuse. Open the fuse container on the side of the Control Unit by turning the fuse cap counterclockwise. If the fuse wire is broken, replace the fuse with an identical 3 amp fuse. Replace and tighten the fuse cap.

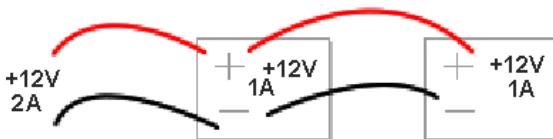
Electrical Power Sources Connected in Series and Parallel.

Solar Panels, batteries and other power sources may be connected in a circuit in “Series” or in “Parallel”. When connected in series, the voltage is combined while the Amperage is unchanged. When connected in parallel, the voltage remains unchanged while the amperage is combined.

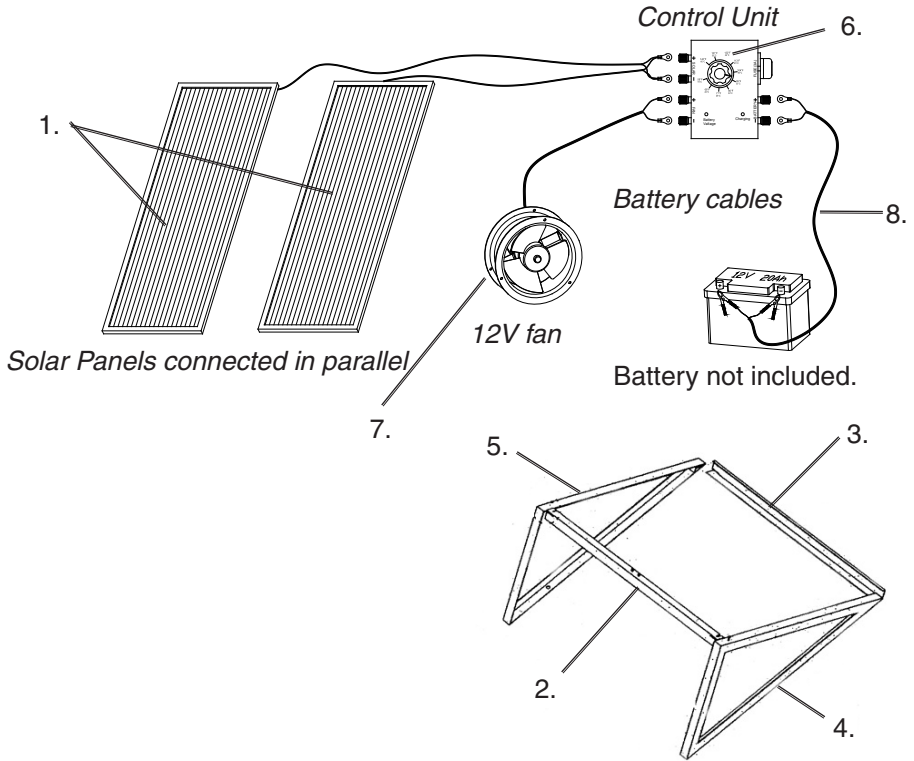
In series, the voltage is combined while the amperage is unchanged.



In parallel, the voltage remains unchanged while the amperage is combined.



Assembly Diagram and Parts List



Part	Description	QTY.
1	Thin Film Solar Panel	2
2	Top Link Bar	1
3	Bottom Link Bar	1
4	Left Triangle Frame	1

Part	Description	QTY.
5	Right Triangle Frame	1
6	Adjustable Temperature Control Unit	1
7	DC Exhaust Fan	1
8	Battery Connector	1

NOTE: Replacement parts are not available for this item.